

[CLAIMS]

[Claim 1] A door lock switch for locking or unlocking a door, and cutting off a current applied to electric driving units under operation when the door is opened forcibly.

5 [Claim 2] A door lock switch comprising:

a switch casing;

a slider for making a hook on a door to be held at or released from the switch casing;

a locking pin for making the slider locked or unlocked;

10 a bimetal for moving the locking pin to a locking, or unlocking position of the slider;

a switch to be closed when the locking pin moves to the locking position of the slider; and

a safety lever for opening the switch when the door is opened forcibly.

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[Claim 3] The door lock switch as claimed in claim 2, wherein the safety lever has one end rotatably connected to the switch casing, and the other end extended so as to be in contact with the hook of the door, and includes a projection at a position opposite to the locking pin for pressing down the locking pin.

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[Claim 4] The door lock switch as claimed in claim 3, wherein the safety lever further includes a rotation delay portion provided to the other end of the safety lever for delaying rotation of the safety lever so that interference between the slider and the projection is prevented when the door is opened.

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[Claim 5] The door lock switch as claimed in claim 2, further comprising a return spring such that the safety lever has a restoring force in a direction the door is opened.

[Claim 6] The door lock switch as claimed in claim 2, further comprising a heater for making thermal deformation of the bimetal.

[Claim 7] The door lock switch as claimed in claim 2, wherein the switch includes;
5 a fixed contact electrically connected to the electric driving units, and
a movable contact electrically connected to a current supply portion for supplying
a current to the electric driving units.

[Claim 8] The door lock switch as claimed in claim 7, wherein the electric driving
10 units are provided to an apparatus provided with the door lock switch, and units that use
electricity as a power source.

[Claim 9] The door lock switch as claimed in claim 2, further comprising a
solenoid for deforming the bimetal to make the locking pin to move to the locking position
15 or the unlocking position of the slider.

[Claim 10] The door lock switch as claimed in claim 9, wherein the solenoid
includes;
a plunger for deforming the bimetal in reaction to a magnetic field, and
20 a coil wound on the plunger for forming the magnetic field as the current is
applied thereto.

[Claim 11] A washing apparatus comprising:
a body forming an exterior of the washing apparatus;
25 an opening in a front surface of the body;
a door for opening/closing the opening;
a hook on the door;
a switch casing on the body in correspondence to the hook on the door;

a slider for making the hook on the door being locked or unlocked at the switch casing;

a locking pin for locking or unlocking the slider;

a bimetal for making the locking pin to move to a locking position or unlocking
5 position of the slider;

a switch to be closed when the locking pin moves to the locking position of the slider; and

a safety lever for opening the switch when the door is opened forcibly.

10 [Claim 12] The washing apparatus as claimed in claim 11, wherein the safety lever has one end rotatably connected to the switch casing, and the other end extended so as to be in contact with the hook of the door, and includes a projection at a position opposite to the locking pin for pressing down the locking pin.

15 [Claim 13] The washing apparatus as claimed in claim 12, wherein the safety lever further includes a rotation delay portion provided to the other end of the safety lever for delaying rotation of the safety lever so that interference between the slider and the projection is prevented when the door is opened.

20 [Claim 14] The washing apparatus as claimed in claim 11, further comprising a return spring such that the safety lever has a restoring force in a direction the door is opened.

[Claim 15] The washing apparatus as claimed in claim 6, further comprising a
25 heater for making thermal deformation of the bimetal.

[Claim 16] The washing apparatus as claimed in claim 11, wherein the switch includes;

a fixed contact electrically connected to the electric driving units, and
a movable contact electrically connected to a current supply portion for supplying
a current to the electric driving units.

5 [Claim 17] The washing apparatus as claimed in claim 11, further comprising a
solenoid for deforming the bimetal to make the locking pin to move to the locking position
or the unlocking position of the slider.

10 [Claim 18] The washing apparatus as claimed in claim 17, wherein the solenoid
includes;
a plunger for deforming the bimetal in reaction to a magnetic field, and
a coil wound on the plunger for forming the magnetic field as the current is
applied thereto.

15 [Claim 19] A method for controlling a washing apparatus comprising the step of
cutting off a current to electric driving units under operation if a door lock switch which
locks or unlocks a door senses forced opening of the door.

20 [Claim 20] A method for controlling a washing apparatus having a body forming
an exterior thereof, electric driving units provided to the body, an opening in a front
surface of the body, a door for opening/closing the opening, a door lock switch for
locking/unlocking the door, and a switch in the door lock switch for being closed when the
door is locked at the door lock switch to supply a current to the electric driving units,
comprising the step of:

25 the door lock switch sensing forced opening of the door; and
opening the switch to cut off the current to the electric driving units under
operation when the forced opening of the door is sensed.

[Claim 21] A method for controlling a washing apparatus having a body forming an exterior thereof, electric driving units provided to the body, a door for opening/closing an opening in the body, a hook on the door, a switch casing on the body in correspondence to the hook on the door, a slider for making the hook on the door to be locked/unlocked at the switch casing, a locking pin for locking/unlocking the slider, a bimetal for moving the locking pin to a locking or unlocking position of the slider, a switch designed to be closed when the locking pin moves to the locking position of the slider, and a safety lever for opening the switch, comprising:

a first step of locking the door to close the switch;

a second step of applying a current to the electric driving units as the switch is closed;

a third step of opening the door forcibly, to open the switch; and

a fourth step of cutting off the current to the electric driving units as the switch is opened.

[Claim 22] The method as claimed in claim 21, wherein the first step includes the step of locking the door to make the locking pin to move to the locking position of the slider by thermal deformation of the bimetal, to close the switch.

[Claim 23] The method as claimed in claim 22, wherein the thermal deformation of the bimetal is made by heat generated at a heat source, such as a heat.

[Claim 24] The method as claimed in claim 21, wherein the third step includes the step of opening the door forcibly, to make the locking pin to move to the unlocking position of the slider by the safety lever to open the switch.

[Claim 25] The method as claimed in claim 21, wherein the electric driving units are devices which use electricity as power sources, such as a motor for rotating a drum, or

a water supply valve for supplying water to a tub.

[Claim 26] A method for controlling a washing apparatus having a body forming an exterior thereof, electric driving units provided to the body, a door for opening/closing an opening in the body, a hook on the door, a switch casing on the body in correspondence to the hook on the door, a slider for making the hook on the door to be locked/unlocked at the switch casing, a locking pin for locking/unlocking the slider, a bimetal for moving the locking pin to a locking or unlocking position of the slider, a solenoid for deforming the bimetal to make the locking pin to move to the locking or unlocking position of the slider, a switch designed to be closed when the locking pin moves to the locking position of the slider, and a safety lever for opening the switch, comprising:

a first step of locking the door to close the switch;
a second step of applying a current to the electric driving units as the switch is closed;
a third step of opening the door forcibly, to open the switch; and
a fourth step of cutting off the current to the electric driving units as the switch is opened.

[Claim 27] The method as claimed in claim 26, wherein the first step includes the step of locking the door to make the locking pin to move to the locking position of the slider by thermal deformation of the bimetal and operation of the solenoid, to close the switch.

[Claim 28] The method as claimed in claim 27, wherein the thermal deformation of the bimetal is made by heat generated at a heat source, such as a heat, and the solenoid acts toward a direction of the thermal deformation of the bimetal as a current is applied thereto.

[Claim 29] The method as claimed in claim 26, wherein the third step includes the step of opening the door forcibly, to make the locking pin to move to the unlocking position of the slider by the safety lever to open the switch.

- 5 [Claim 30] The method as claimed in claim 26, wherein the electric driving units are devices which use electricity as power sources, such as a motor for rotating a drum, or a water supply valve for supplying water to a tub.